PND2

THE INFLUENCE OF PARENTERAL NUTRITION ON THE PLASMA PROTEIN BINDING OF THERAPEUTIC DRUGS

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OBJECTIVES: Parenteral nutrition (PN) is used in various clinical situations. However, some interactions might occur with drugs that are administered concurrently with PN. Therefore, this search reviews the potential interactions of PN with therapeutic drugs (mainly antiepileptics), especially in respect to the plasma protein-binding of the drug. **METHODS:** The articles related to the topic were identified through the Medline and PubMed. Full text of the articles were then traced from the Universiti Sains Malaysia (USM) library subscribed databases, including Wiley-Blackwell Library, Cochrane Library, EBSCOHost, OVID, ScienceDirect, SAGE Premier, Scopus, SpringerLINK, and Wiley InterScience. The articles from journals not listed by USM library were traced through inter library loan. **RESULTS:** There were interactions between PN and drugs, including antiepileptics. Several guidelines were designed for the management of illnesses such as traumatic brain injuries or cancer patients, involving the use of PN and antiepileptics. Moreover, many studies demonstrated the in vitro and in vivo PN-drugs interactions, especially with antiepileptics. **CONCLUSIONS:** Alteration in the drug-free fraction result from PN-drug (i.e. antiepileptics) interactions may necessitate scrupulous reassessment of drug dosages in patients receiving these therapies. This reassessment may be particularly imperative in certain clinical situations characterized by hypoalbuminemia (e.g., burn patients).

PND3

EFFICACY AND TOLERABILITY OF INTERFERON-BETA IN ALL TYPE OF MULTIPLE SCLEROSIS

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OBJECTIVES: The aim of this meta-analysis was to evaluate the efficacy and tolerability of IFN β for maintenance of remission in MS. **METHODS:** Pubmed, Scopus, and Cochrane Central Register of Controlled Trials were searched for studies investigated efficacy and/or tolerability of interferon β (IFN β) in MS. Data were collected from 1966 to 2009 (up to July). **RESULTS:** Nine randomized placebo controlled clinical trials met our criteria and were included. Summary relative risk (RR) for at least one relapse including all types of MS and all types of IFN β was 0.86, a significant RR (95% CI: 0.76–0.97). Summary RR for at least one relapse in secondary progressive MS (SPMS) patients received all types of IFN β was 1.11(95% CI: 0.79–1.55). RR for at least one relapse in RRMS patients received all types of IFN β was 0.77(95% CI: 0.57–1.05). RR for at least one relapse in SPMS patients received IFN β-1b was 0.93 (95% CI: 0.75–1.14). RR for at least one relapse in patients with all types of MS received IFN β-1a was 0.97 (95% CI: 0.57–1.67) and for IFN β-1b was 0.92 (95% CI: 0.85–1). The summary RR for discontinuing because of adverse events in nine trials was 2.76, a non-significant RR (95% CI: 1.97–3.89, P < 0.0001). The summary RR death in three trials was 1.53 (95% CI: 0.45–5.15). RR for suicides or suicide attempts in five trials was 0.86 (95% CI: 0.41–1.79). RR for different adverse events of all types of IFN β comparing to placebo in all types of MS including flu-like symptoms, injection site reactions, injection site inflammation, myalgia, leucopenia, lymphopenia, increased alanine aminotransferase were significant except for depression that its RR was non-significant. **CONCLUSIONS:** It can be concluded that INF β's effectiveness in MS is dependent to administration of different kind of interferon β and type of MS.

NEUROLOGICAL DISORDERS – Cost Studies

PND4

BUDGET IMPACT ANALYSIS OF NATALIZUMAB FOR MULTIPLE SCLEROSIS TREATMENT IN BRAZIL: A 5-YEAR PROJECTION

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OBJECTIVES: To estimate the annual and 5-year budgetary impact of including natalizumab in the Brazilian public health care system drug formulary for the treatment of relapsing remitting multiple sclerosis (MS). **METHODS:** Brazilian public health care system perspective was adopted. The baseline scenario comprised four treatment options available in Brazil in the year 2009, and its corresponding market shares: 1) interferon beta 1A intramuscular (23%); 2) interferon beta 1A subcutaneous (32%); 3) interferon beta 1B (23%); and (4) glatiramer acetate (22%). Data were retrieved from the Brazilian health system database. a claims data based approach was used to estimate the baseline population size, which was estimated to be 6935 patients. In addition to the base-case scenario, three alternative scenarios were created to estimate the budgetary impact of including natalizumab to the drug formulary at 3 possible market shares: 3%, 10% or 22%. Costs for currently available treatments comprised average purchase prices paid by the Brazilian government in 2009. The adopted natalizumab dose cost was R$,652 (€1660), obtained from public data issued by the Brazilian's regulatory health agency (ANVISA). Costs were adjusted for 4% annual inflation. No discounts were considered. Sensitivity analysis was performed. **RESULTS:** Base-case costs for treatment of MS within a 5-year period were R$1280,698,041 (€582,135,473). Relative to this value, at 3% market share, the inclusion of natalizumab produced a 6% (R$78,858,437/€35,844,744) increase in expenditures. At 10% market share, the corresponding expenditures increased 9% (R$108,902,983/€49,501,356). At 22% market share, there was an increase of 13% in total costs with MS treatment (R$161,903,806/€73,592,639). **CONCLUSIONS:** Entry of natalizumab into the market is likely to result in a significant increase in MS treatment costs for the Brazilian health care system. However, this must be weighted against the need for new treatment options as well as potential savings from better disease control rates.

PND5

BUDGET-IMPACT MODEL TO TEST EFFECTS OF CHANGING RUFINAMIDE TIER STATUS FROM A PAYER PERSPECTIVE

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OBJECTIVES: Lennox-Gastaut Syndrome (LGS) is an epileptic encephalopathy characterized by intractable seizures of many types. LGS has its onset in early childhood, and often persists into adulthood. It is estimated that the prevalence of LGS among children and adults with epilepsy is 6.5% and 1.5%, respectively. This budget impact model was developed to help US payers make informed decisions regarding the addition of rufinamide for the management of LGS. To analyze overall budget impact of changing rufinamide from tier 3 to tier 2 status for a large U.S. payer. **METHODS:** The budget impact model was constructed based upon the indicated population for rufinamide, which is children 4 years and older and adults (18+) requiring adjunctive treatment of seizures associated with LGS. The model follows patients over three years and estimates the direct health care costs associated with LGS treatment before and after the introduction of rufinamide. The three main categories of data inputs informing the model include: plan population inputs, treated prevalence inputs, and treatment and cost inputs. The base-case model results are based on data derived from published literature, publicly available data sources, or assumptions. The results are presented as follows: total costs over 3 years, cost per member per year (PMPY), cost per treated member per year (PTMPY), cost per member per month (PMPM), and cost per treated member per month (PTMPM). **RESULTS:** Assuming a one million member plan and a discount rate of 3% shifting rufinamide from tier 3 to tier 2 resulted in $1,001 in additional total costs over 3 years. This translates to a change in a PTMPY of $1.00 and a PTMPM of $0.13. PMPY and PMPM were not notably affected. **CONCLUSIONS:** Based on this analysis changing rufinamide from tier 3 to tier 2 does not exhibit a significant cost increase.

PND6

VALUE OF BUDGET IMPACT ANALYSIS BASED ON EPIDEMIOLOGIC DATA: INSIGHTS FROM MULTIPLE SCLEROSIS IN SAO PAULO, BRAZIL

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BACKGROUND: Despite its relatively low prevalence in Brazil, multiple sclerosis (MS) is responsible for significant health care expenditures for the public health care system. **OBJECTIVES:** To compare actual MS treatment expenditures and expected expenditures based on an epidemiological projection. **METHODS:** We retrieved actual treated prevalence and treatment costs from Brazil's public health system database for the city of Sao Paulo, in 2009. Then, current prevalence of MS for the city of Sao Paulo was estimated based on the best epidemiological evidence available, a prevalence study conducted in 1997, which reported a prevalence of 15/100,000 inhabitants. Data were analyzed comparing actual and potential expenditure related to drug treatments, assuming that 85% of prevalent cases comprised the relapsing form of MS. **RESULTS:** We retrieved the total number of doses for each one of the available treatment options for MS in the city of São Paulo for the year 2009 (interferon beta-1A, interferon beta-1B and glatiramer acetate). Considering the expected number of doses required to treat one patient for one year with each treatment option, we estimated the number of patients covered within one year of treatment to be 1,319 patients. This corresponds to an estimated treated prevalence of 11.9 cases per 100,000 inhabitants, considering the estimated population for the year 2009 (11,037,593 inhabitants). Actual costs incurred for the city of Sao Paulo in 2009 with the treatment of MS were R$40,993,666/€18,633,484. Assuming a prevalence of 15/100,000 inhabitants, 1,666 cases of MS would be expected in the city, of which 1,416 would be relapsing MS. Their treatment would require R$43,811,800/€19,914,454. **CONCLUSIONS:** There are marginal differences between treated and expected prevalence of relapsing MS in the city of Sao Paulo. This indicates that local programs for MS diagnosis and treatment are successful. Likewise, current budget impacted analyses based on epidemiologic information seems accurate.

PND7

ECONOMIC IMPACT OF PERSISTENCE TO DISEASE MODIFYING THERAPIES FOR THE TREATMENT OF MULTIPLE SCLEROSIS

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OBJECTIVES: Multiple sclerosis (MS) is a chronic incurable disease with a progressive course. Studies have demonstrated that disease progression can be slowed by treatment with disease modifying therapies (DMTs). Poor DMT adherence is associated with a